



UNITED STATES PATENT AND TRADEMARK OFFICE

ca
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,442	10/29/2005	Janne Kerovuo	D2000-1WUS	8134
29062 7590 06/04/2007 DIVERSA CORPORATION 4955 DIRECTORS PLACE SAN DIEGO, CA 92121			EXAMINER SWOPE, SHERIDAN	
			ART UNIT 1652	PAPER NUMBER
			MAIL DATE 06/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/501,442

Applicant(s)

KEROVUO ET AL.

Examiner

Sheridan L. Swope

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) see continuation sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) see continuation sheet are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

4. Pending claims: 1, 5, 8, 9, 16, 18, 24, 27, 31, 34-36, 40, 43, 45, 49, 51, 52, 54, 55, 58-61, 68, 70, 76, 77, 81, 86, 87, 91, 93-95, 97-99, 101, 103, 106, 107, 111, 121, 123, 126, 136, 137, 141, 145, 146, 151, 153, 158, 160, 163-166, 169, 170, 173, 174, 177-179, 190, 191, 194-197, 199, 201, 203-205, 208, 209, 212, 214-216, 218-221, 223-226, 229, and 231-235

8. Claims subject to restriction/election: 1, 5, 8, 9, 16, 18, 24, 27, 31, 34-36, 40, 43, 45, 49, 51, 52, 54, 55, 58-61, 68, 70, 76, 77, 81, 86, 87, 91, 93-95, 97-99, 101, 103, 106, 107, 111, 121, 123, 126, 136, 137, 141, 145, 146, 151, 153, 158, 160, 163-166, 169, 170, 173, 174, 177-179, 190, 191, 194-197, 199, 201, 203-205, 208, 209, 212, 214-216, 218-221, 223-226, 229, and 231-235

Art Unit: 1652

DETAILED ACTION

Claims 1, 5, 8, 9, 16, 18, 24, 27, 31, 34-36, 40, 43, 45, 49, 51, 52, 54, 55, 58-61, 68, 70, 76, 77, 81, 86, 87, 91, 93-95, 97-99, 101, 103, 106, 107, 111, 121, 123, 126, 136, 137, 141, 145, 146, 151, 153, 158, 160, 163-166, 169, 170, 173, 174, 177-179, 190, 191, 194-197, 199, 201, 203-205, 208, 209, 212, 214-216, 218-221, 223-226, 229, and 231-235 are pending.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1, 5, 9, 16, 18, 24, 27, 31, 35, 36, 40, 49, 52, 94, 101, 165, 204, and 205, and Claim 5, in part, drawn to a polynucleotide encoding a pectate lyase polypeptide.
- II. Claims 55, 58-61, 68, 70, 76, 77, 81, 86, 87, 91, 93, 174, 178, 190, 195, 197, 199, 208, 209, 218-221, 223-226, 229-231, and Claim 5, in part, drawn to pectate lyase polypeptide.
- III. Claims 34 and 121, drawn to a method for amplifying a polynucleotide encoding a pectate lyase polypeptide.
- IV. Claim 43, drawn to a transgenic animal comprising a polynucleotide encoding a pectate lyase polypeptide.
- V. Claims 45, 169, drawn to a transgenic plant comprising a polynucleotide encoding a pectate lyase polypeptide.
- VI. Claims 51 and 54, drawn to a method of inhibiting translation using a polynucleotide encoding a pectate lyase polypeptide.
- VII. Claims 95 and 97, drawn to an antibody to a pectate lyase polypeptide.
- VIII. Claim 98, drawn to a method of isolating a pectate lyase polypeptide.
- IX. Claim 99, drawn to a method of making an antibody to a pectate lyase polypeptide.

Art Unit: 1652

- X. Claims 103 and 151, drawn to a method for assaying pectate lyase activity.
- XI. Claim 106, drawn to a method for identifying a binding partner of a pectate lyase polypeptide.
- XII. Claim 107, drawn to a method for identifying a modulator of a pectate lyase polypeptide.
- XIII. Claim 111, drawn to a computer system.
- XIV. Claim 123, drawn to a hybridization method for identifying a polynucleotide encoding a pectate lyase polypeptide.
- XV. Claims 126, 136, and 137, 212, 214-216 drawn to a recombinant method for modifying a polynucleotide encoding a pectate lyase polypeptide.
- XVI. Claim 141, drawn to a method for making a library of polynucleotides encoding variant pectate lyase polypeptides.
- XVII. Claim 145, 146, drawn to a method for making a small molecule using a pectate lyase polypeptide.
- XVIII. Claim 153, drawn to a method for making altered recombinant cell using a polynucleotide encoding a pectate lyase polypeptide.
- XIX. Claim 158, drawn to a signal sequence peptide.
- XX. Claim 160, drawn to a chimeric polypeptide.
- XXI. Claim 163, drawn to a polynucleotide encoding a chimeric polypeptide.
- XXII. Claim 164, drawn to a method for increasing thermostability of a pectate lyase polypeptide using glycosylation.
- XXIII. Claim 166, drawn to a method for making a transgenic plant.

Art Unit: 1652

XXIV. Claims 170 and 173, in part, drawn to a method for hydrolyzing pectin using a pectate lyase polypeptide.

XXV. Claims 177 and 179, and Claims 170 and 173, in part, drawn to a method for hydrolyzing pectin using a polynucleotide encoding a pectate lyase polypeptide.

XXVI. Claim 191, drawn to a method for extracting oil from a plant using a pectate lyase polypeptide.

XXVII. Claim 194, drawn to a method for preparing juice using a pectate lyase polypeptide.

XXVIII. Claim 196, drawn to a method for treating wood using a pectate lyase polypeptide.

XXIX. Claims 201 and 203, in part, drawn to a method for treating soft-rot spoilage or mildew using an antibody inhibitor of a pectate lyase polypeptide.

XXX. Claims 201 and 203, in part, drawn to a method for treating soft-rot spoilage or mildew using a DNA inhibitor of a pectate lyase polypeptide.

XXXI. Claim 232-235, drawn to a bioscouring process using a pectate lyase polypeptide.

This application contains claims directed to the following patentably distinct species.

If any of Inventions I, III-VI is elected, elect one specific sequence listed in Claim 1, 24, 204, or 205.

If Invention I is elected, also elect one of the following.

Wherein, the activity is:

- (A) Beta elimination
- (B) Hydrolysis

Art Unit: 1652

- (C) Of pectate lyase
- (D) Of poly(1,4-alpha-D-galacturonide) lyase,
- (E) Of polygalacturonate lyase
- (F) Of pectin lyase
- (G) Of polygalacturonase
- (H) Of exo-polygalacturonase
- (I) Of exo-polygalacturonate lyase
- (J) Of exo-poly-alpha-galacturonosidase

If Invention II is elected, elect **one specific** sequence listed in Claim 55, 208, or 209.

If Invention II is elected, also elect one of the following.

Wherein, the activity is:

- (K) Beta elimination
- (L) Hydrolysis
- (M) Of pectate lyase
- (N) Of poly(1,4-alpha-D-galacturonide) lyase,
- (O) Of polygalacturonate lyase
- (P) Of pectin lyase
- (Q) Of polygalacturonase
- (R) Of exo-polygalacturonase
- (S) Of exo-polygalacturonate lyase
- (T) Of exo-poly-alpha-galacturonosidase

If Invention VI, VII, or IX is elected, elect **one specific** sequence listed in Claim 55.

Art Unit: 1652

If Invention X is elected, elect one specific sequence listed in Claim 1, 24, or 55.

If Invention XI or XII is elected, elect one specific sequence listed in Claim 55.

If Invention XIV is elected, elect one specific sequence listed in Claim 1 or 24.

If Invention XV is elected, elect one specific sequence listed in Claim 1, 24, 212, or 214-216.

If Invention XVI is elected, elect one of SEQ ID NO: 1 or SEQ ID NO: 7.

If Invention XVII is elected, elect one specific sequence listed in Claim 1, 24, or 55.

If Invention XVIII is elected, elect one specific sequence listed in Claim 1 or 24.

If Invention XIX is elected, elect one specific sequence listed in Claim 158.

If Invention XX is elected, elect one specific sequence listed in Claim 160.

If Invention XXI is elected, elect one specific sequence listed in Claim 163.

If any of Inventions XXII- XXVIII is elected, elect one specific sequence listed in Claim 1, 24, or 55.

If Invention XXIX is elected, elect one specific sequence listed in Claim 55.

If Invention XXX is elected, elect one specific sequence listed in Claim 1 or 24.

If Invention XXXI is elected, elect one specific sequence listed in Claim 55.

The inventions listed as Groups I-XXXI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons: The technical feature linking Groups I- XXXI appears to be that the all relate to pectate lyases. However, pectate lyases were known in the art. Moreover, van der Hoeven et al, 2001 teach a polynucleotide comprising 15 contiguous bases having 87% homology with SEQ ID NO: 1, which anticipates Claim 1. Therefore Groups I- XXXI share no

Art Unit: 1652

special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art. Furthermore, the products of Groups I, II, IV, V, VII, XIII, and XIX-XXI do not share a special common structural and functional feature while, the methods of Groups III, VI VIII-XII, XIV-XVIII, and XXII-XXXI do not use the same reagents or produce the same results. In addition, the methods of Groups III, VI VIII-XII, XIV-XVIII, and XXII-XXXI do not comprise all of the methods for making or using the products of Groups I, II, IV, V, VII, XIII, and XIX-XXI. Accordingly, Groups I-XXXI are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). Also, product and process inventions are distinct if any of the following can be shown: (1) that the process as claimed can be used to make another and materially different product, (2) that the product claimed can be used in a materially different process of using that product, or (3) that the product claimed can be made by another and materially different process (MPEP § 806.05(h)). These inventions are different or distinct for the following reasons.

Inventions I, II, IV, V, VII, XIII, and XIX-XXI are unrelated because the products of Inventions I, II, IV, V, VII, XIII, and XIX-XXI are physically and functionally distinct chemical entities.

Inventions III, VI VIII-XII, XIV-XVIII, and XXII-XXXI are independent because the methods of Inventions III, VI VIII-XII, XIV-XVIII, and XXII-XXXI comprise different steps, utilize different products and/or produce different results.

Inventions I, II, IV, V, VII, XIII, and XIX-XXI are distinct from Inventions III, VI VIII-XII, XIV-XVIII, and XXII-XXXI because the methods of Invention III, VI VIII-XII, XIV-XVIII, and XXII-XXXI are not the only methods of making or using the products of Inventions I, II, IV, V, VII, XIII, and XIX-XXI.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

The species listed above are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching

Art Unit: 1652

different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

These inventions are distinct for the reasons given above and have acquired a separate status in the art due to their recognized divergent subject matter, as shown by their different classification. Furthermore, as explained above, searching more than one invention would be a burden on the Office. Therefore, restriction for examination purposes, as indicated, is proper.

Restriction between product and process claims has been required. Where Applicant elects claims directed to a product, and the product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the Official Gazette notice dated March 26, 1996 (1184 O.G. 86; see also M.P.E.P. 821.04, *In re Ochiai*, and *In re Brouwer*). Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right, if the amendment is presented prior to final rejection or allowance, whichever is earlier. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. To be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

To insure that each document is properly filed in the electronic file wrapper, it is requested that each of amendments to the specification, amendments to the claims, Applicants' remarks, requests for extension of time, and any other distinct papers be submitted on separate pages.


It is also requested that Applicants identify support, within the original application, for any amendments to the claims and specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheridan Lee Swope, Ph.D.
Art Unit 1652



SHERIDAN SWOPE, PH.D.
PRIMARY EXAMINER